Eaton Telecommunications Power Solutions Business

DC Power Solutions - North America
April 2011

Powering Business Worldwide

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Powering Business Worldwide

Eaton's Telecommunications Power Solutions Business

Our Business

Eaton Corporation is a global diversified industrial manufacturer and a leader in electrical power quality, distribution and control. Eaton serves the needs of customers located in over 125 countries.

Eaton's telecommunications power solutions business provides telecommunications and related sectors with world-leading infrastructure products and services.

Global Presence

Headquarters are located in Raleigh, North Carolina and regional sales headquarters are located in USA, Asia and Europe with offices in over 30 additional countries and with representation in over 100 countries it is one of the few telecommunications infrastructure providers with a truly global presence.

Environmental Standards

Eaton strives for the highest environmental standards across both our operations and products and our commitment goes beyond compliance with existing regulations. We wish to become recognized as an industry leader in creating safe workplaces and conserving world resources.

Eaton is committed to environmental stewardship and participates in a number of volunteer government partnership programs worldwide.

We were among the first diversified industrial companies to pursue global ISO 14001 certification - a rigorous standard for managing and improving environmental performance. Today, virtually all of Eaton's facilities worldwide have earned this designation.

We've also set tough performance goals for ourselves, like reducing our greenhouse gas emissions by 18 percent (adjusted for production) by 2012.

Unsurpassed Experience

Eaton has in excess of 40 years experience of working closely with customers to deliver tailored power management solutions. for communications networks around the world.

Customer led Solutions

Eaton's insight into customer needs is demonstrated through its products in terms of reliability, efficiency, smart energy features, power density, and ease of installation,

Intelligent monitoring and control capabilities add flexibility, precision, reliability, and automation - without added complexity.

Comprehensive Range

Our telecom power solution range includes AC and DC power systems, power and ancillary equipment management software, cabinets and enclosures, and other products. Eaton also offers a wide range of DC services including design, installation and commissioning remote monitoring, turnkey integration and site support, to provide a seamless solution.

Delivery

Eaton's global scale manufacturing and logistic capability means that products and services can be delivered with maximum cost-effectiveness and with the delivery speed and flexibility that you expect.

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Services Capability

Eaton's offers a wide range of DC secure power services including power quality evaluation, sizing, design consultancy, installation and commissioning, full project management and turnkey integration, anywhere in the world.Our individually tailored service contract plans can provide ongoing service maintenance, training, after-sales service, and repairs, Eaton's global presence ensures quick response times for all of our customers.

Design Services

Skilled engineering staff can provide a full design service for DC power systems to specifically suit individual applications and sites.

World-Wide On-Site Services

Eaton's fully trained customer service engineers can carry out all installation tasks or supervise and assist local staff.

Integration Services

Our telecommunications integration services provide complete install, testing and integration services for any type of communications or other electronic equipment, to world leading standards of quality.

Typical projects Eaton has completed include the integration of network access equipment into roadside cabinets and the on-site installation and commissioning of telecoms equipment.

Eaton is now applying this expertise to the provision of integration services for original equipment manufacturers and network operators.

Power Monitoring

Eaton can provide 24 x 7 DC power system and battery monitoring, and provide remote diagnostics to maximize responsiveness and uptime, Monthly performance reports and trend analysis assist optimum system performance.

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After-Sales Service and Repairs

Eaton DC Regional Repair Sites, staffed by fully trained technicians, are strategically located around the world to provide rapid turnaround times. Individually tailored service contracts are also available so customers can choose the ongoing service package that best suits their requirements.

Options include extended warranty periods, unlimited out-of- warranty repairs, immediate replacement, on–site maintenance, and battery testing and conditioning. Special terms and conditions apply to some DC services.

Training

Eaton offers a comprehensive range of training courses designed to provide the right level of product knowledge with practical demonstrations and hands-on opportunities. Courses can be arranged at an Eaton location or at a customer's site.

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Application and Product Selection Guide for Eaton DC Power Solutions

	Application	Eaton DC Power Solutions			
		Enterprise Power Solutions	Access Power Solutions [1]	Metro Power Solutions [2]	Core Power Solutions [3]
			1-744A, 24V or 48V	Up to 1500A, 24V or 48V	Up to 15,360A, 48V
Customer Premises Equipment	PBX/VoIP	✓	✓		
	Wireless Access	✓	✓		
Wireless	Mini/metro sites		✓		
	Base transceiver stations (BTS)		✓	✓	
	Base station controllers (BSC)		✓	✓	
	Main switches			✓	✓
Wireline	Fiber transmission systems	✓	✓	✓	✓
	Digital microwave radio		✓	✓	
	Broadband voice data services	✓	✓	✓	
	Satellite earth stations			✓	✓

1. Including DV2 (Data-Voice-Video) Power Solutions with APR rectifier modules.
2. Including DV2 (Data-Voice-Video) Power Solutions with NPR rectifier modules.
3. Systems with higher output are also available

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Email: dc.info@eaton.com
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3G Enterprise Power Solutions - EPS2 Series

The **Eaton® 3G Enterprise Power Solutions** are the ideal solution for converged data networks and low power tele-communications applications requiring compact, efficient and flexible DC power supplies.

This EPS2 series is a 19" rack mounted system and is available with up to two of the Eaton 3G Enterprise or Access 48V rectifier modules providing a total output of up to 4000W.

The versatile SC200 system controller features a front access USB port for ease of system setup along with a RS232 rear port and a 10BaseT Ethernet port for remote networking and communications.

Communication features of the SC200 system controller include TCP/IP, SNMP and an onboard web server allowing access with standard web browsers. The SC200 also supports GSM cellular (including text messaging) and standard PSTN modems.

The Enterprise systems include an integral DC distribution panel with easy to fit push-in circuit breakers and low voltage disconnect contactor to prevent over discharging of the optional backup batteries.

Typical applications include providing secure power for customer premises equipment, roadside cabinets, converged VoIP/data networks, PoE, IP routers and small PABX's.

Features

- 19" rack mounting
- High power density
- Intelligent system controls
- Pre-configured software
- Onboard secure web server
- Push-in easy to fit circuit breakers
- Low voltage disconnect
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Easy to use menu & full color display
- Optional batteries
- Compatible with Eaton's Energy Saver (ES) rectifier

ES ENERGY SAVER VERIFIED SOLUTION

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Technical Specification

Input

AC Supply	Nominal: 120V, 240V Operating Range: 90V – 275V
Power Factor †	>0.99 (50 – 100% Output Current)
Efficiency †	>96% peak >95% (20% to 100% load, 230Vac)

Output

DC Output Voltage Range	43 – 57.5V	
DC Output Power (maximum*) †	240V AC:	APR48-ES: 4.0kW APR48-3G: 3.6kW EPR48-3G: 1.8kW
	120V AC:	APR48-ES: 2.3kW APR48-3G: 2.2kW EPR48-3G: 1.1kW
	** Based on two rectifiers fitted, refer to rectifier data sheets.*	

Environmental

Operating Temperature Range	Rated:	-10°C to +50°C [-14°F to +122°F]
	Extended*:	-40°C to +70°C [-40°F to +158°F]
	*Output current is derated above 50°C [122°F]	

Mechanical

Dimensions H,W,D	2U , 19" mounting, 13.2" [335mm]* ** Additional clear depth space is required for exhaust air.*

System

System Controller	SC200
DC Distribution Module	12-way circuit breakers (2 x Battery, 10 x Load) Circuit breaker type: Magnetic/Hydraulic, push fit Battery circuit breakers: Heinemann AC1R Series Typical ranges available: 30A, 40A, 50A, 60A, 70A Load circuit Breakers: Heinemann JC1S Series Typical ranges available: 6A,10A, 15A, 20A, 25A, 30A
Communication Features	USB direct 10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server RS232 to external PSTN or GSM modem (modem not included)
Rectifier Blank Panels	For unused rectifier positions

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
Power Xpert	Remote control and monitoring software

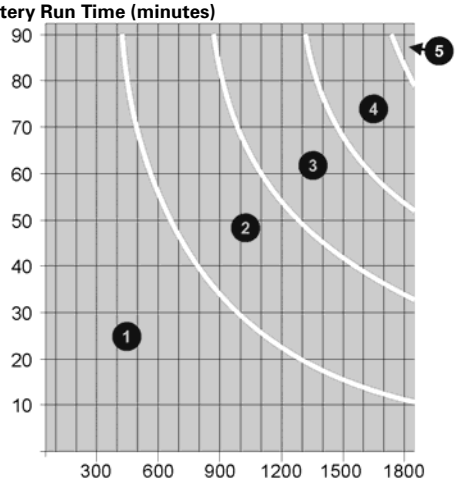
† *Power factor, efficiency and DC output power are dependant on rectifier model fitted. Refer to the rectifier data sheet for further details.*

Options

Battery*	Eaton Extended Battery Module (EBM) PW5130 48V EBM RM P/N 103006587-6591 Weight: 29.5kg [65lb] Dimensions (H,W,D*): 85mm (2U), 432mm (19" mounting), 487mm **Additional space is required at the rear for cables.*

Typical Run time values* (see graph).

Battery Run Time (minutes)



Equipment Power (watts)

A = Required number of battery modules.

*Battery times are approximate and vary depending on factors such as: - load configuration
- battery charge
- battery age and temperature.

* Other battery options available - consult your local Eaton agent.

Battery Cables	CKBATT-02 Eaton EBM 5130 connection cable, 2000mm long or CKBATT-01 'other batteries' connection cable, 2000mm long
Equipment Cable	Customer Equipment Connection Cable CKLOAD-00 10-way connection loom, 1000mm long
EBM Rack Mounting Kit	Included with EBM5130 as standard

Certifications

All products comply with International Standards.

North America	UL (Canada, USA), FCC Class B
Europe	CE
Australia and New Zealand	C-Tick

In the interests of continual product improvement all specifications are subject to change without notice.

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3G Enterprise Power Solutions - EPS5 Series

The **Eaton® 3G Enterprise Power Solutions** are the ideal solution for converged data networks and low power tele-communications applications requiring compact, efficient and flexible DC power supplies.

The EPS5 series is a 19" rack mounted system and is available with up to five of the Eaton 48V 3G Enterprise power rectifier modules, providing a total output of up to 4500W. The modular design of the system allows users to simply add additional rectifiers and batteries as required to meet future growth of their network power demand, thus, better protecting the initial power system investment.

The versatile SC200 system controller features a front access USB port for ease of system setup along with a RS232 rear port and a 10BaseT Ethernet port for remote networking and communications.

Communication features of the SC200 system controller include TCP/IP, SNMP and an onboard web server allowing access with standard web browsers.

The Enterprise systems include an integral DC distribution panel with easy to fit push-in circuit breakers and low voltage disconnect contactor to prevent over discharging of the optional backup batteries.

Typical applications include providing secure power for customer premises equipment, roadside cabinets, converged VoIP/data networks, PoE, IP routers and small PABX's.

Features

- 19" rack mounting
- High power density
- Intelligent system controls
- Pre-configured software
- Onboard secure web server
- Push-in easy to fit circuit breakers
- Low voltage disconnect
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Easy to use menu & full color display
- Optional batteries

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Technical Specification

Input

AC Supply	Nominal: 120V, 240V Operating range: 90V – 275V
Power Factor †	>0.99 (50 – 100% output current)
Efficiency †	91% (50 – 100% output current)

Output

DC Output Voltage Range	43 – 57.5V
DC Output Power (maximum*) †	240V AC: 4.5kW 120V AC: 2.25kW ** Based on five rectifiers fitted, refer to EPR48-3G rectifier data sheets.*

Environmental

Operating Temperature Range	Rated: -10°C to +50°C [-14°F to +122°F] Extended*: -40°C to +70°C [-40°F to +158°F] *Output current is derated above 50°C [122°F]

Mechanical

Dimensions H,W,D	3U, 19" mounting, 13.2" [335mm]* ** Additional clear depth space is required for exhaust air.*

System

System Controller	SC200
DC Distribution Module	12-way circuit breakers (2 x battery, 10 x load) Circuit breaker type: magnetic/hydraulic, push fit Battery circuit breakers: Heinemann AC1R Series Typical ranges available: 30A, 40A, 50A, 60A, 70A Load circuit breakers: Heinemann JC1S Series Typical ranges available: 6A,10A, 15A, 20A, 25A, 30A
Communication Features	USB direct 10BaseT Ethernet, TCP/IP, SNMP, Modbus-TCP, Modbus-RTU and on board web server RS232 to external PSTN or GSM modem (modem not included)
Rectifier Blank Panels	For unused rectifier positions

Software

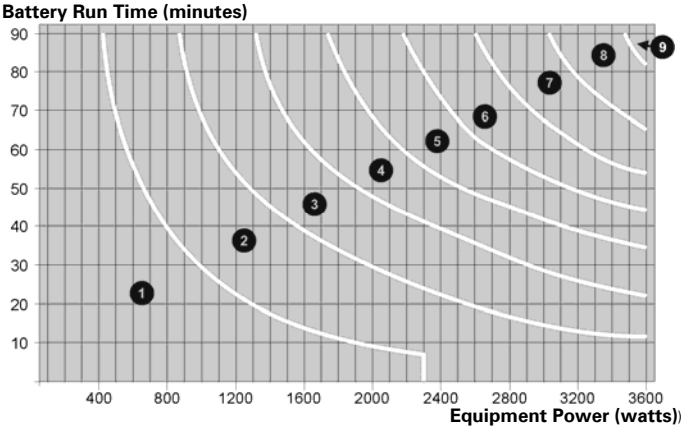
DCTools	Configuration software. Free download from: www.powerware.com/downloads
Power Xpert	Remote control and monitoring software

† *Power factor, efficiency and DC output power are dependant on rectifier model fitted. Refer to the rectifier data sheet for further details.*

Options

Battery*	Eaton Extended Battery Module (EBM) PW5130 48V EBM RM P/N 103006587-6591 Weight: 29.5kg [65lb] Dimensions (H,W,D*): 85mm (2U), 432mm (19" mounting), 487mm ** Additional space is required at the rear for cables.* Typical run time values* (see graph).

Battery Run Time (minutes)



Equipment Power (watts)

● = Required number of battery modules.

*Battery times are approximate and vary depending on factors such as:
- load configuration
- battery charge
- battery age and temperature.

* Other battery options available - consult your local Eaton agent.

Battery Cables	CKBATT-02 Eaton EBM 5130 connection cable, 2000mm long. or CKBATT-01 'other batteries' connection cable, 2000mm long.
Equipment Cable	Customer equipment connection cable CKLOAD-00 10-way connection loom, 1000mm long
EBM Rack Mounting Kit	Included with EBM5130 as standard

Certifications

All products comply with international standards.

North America	UL (Canada, USA), FCC Class B
Europe	CE
Australia and New Zealand	C-Tick

In the interests of continual product improvement all specifications are subject to change without notice.

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Enterprise Battery Module

The **Eaton® 3G Enterprise Extended Battery Module (EBM**) is designed as an optional integrated backup power source to the 3G Enterprise Power Systems, providing secure power during AC grid failure for anything from orderly shutdowns through to extended runtimes for continuity of service.

Multiple battery modules can be connected together to achieve increased backup capacity for a given output demand.

This module is slim and rack mountable to suit the likely applications for these systems such as server room racks.

The battery modules use simple 'plug and play' cables for connecting the Enterprise Power Solution. No specialized tools are required, thus making installation very easy in an IT environment.

The scalability of the EBM ensures that your investment is protected into the future as the demands of your network increase. Simply add more EBM modules as your network grows.

EBM has an 18Ahr capacity and is service maintenance free for the life of the battery module. Battery function is monitored and controlled by the power system controller for complete battery protection.

Features

- Easy to install
- Slimline 19" rack mounting
- Extended runtime -18Ahr capacity
- Modular and scalable
- Service maintenance free VLRA batteries

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Technical Specification

Output

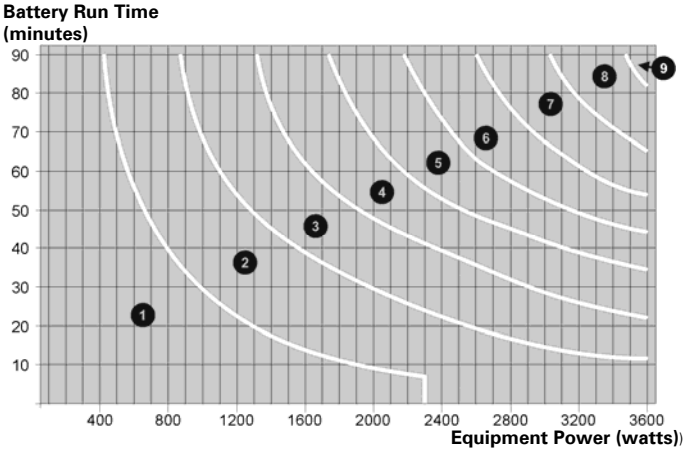
DC Output Voltage	48V nominal
DC Output Capacity	18Ahr Maximum input/output current should not exceed 55Amps

Mechanical

Weight	29.5kg
Dimensions H,W,D	85mm (2U), 432mm (19" mounting), 487mm* * *Additional space is required at the rear for cables.*

Battery

Typical Run Time Values*



● = Required number of battery modules.

*Battery times are approximate and vary depending on factors such as:
- load configuration
- battery charge
- battery age and temperature.

Order Number	Eaton Extended Battery Module (EBM) PW5130 48V EBM RM P/N 103006587-6591

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America	UL listed
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice.

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EBM_B

3G Access Power Solutions - APS3-400 Series

Features

- Compact and scalable 19" sub-rack solution
- High power density (5.4kW @ 48V/3U, 19")
- Easy plug-and-go rectifier set-up
- Fast on-line rectifier expansion (hot-plug)
- High efficiency and unity power factor
- Single AC input or individual rectifier feeds
- Intelligent system management features
- Remote access (TCP/IP, web browser, SNMP)
- Pre-configured software for quick & simple deployment
- Onboard energy management software optimizes operating efficiency for lower OPEX

The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power supplies with or without batteries.

This Eaton 3G Access Power Solution 400 series has UL and FCC standards certifications. A technician friendly user-interface includes a full color menu screen and is preconfigured for fast install and easy commissioning. All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

With up to 6kW of power output, it features state-of-the-art 48V 3G or Energy Saver (ES) Access Power Rectifiers for superior operating efficiency (>96%). The DC distribution panel, simple to use hydraulic magnetic circuit breakers, and optional low voltage disconnect (LVD) modules are fully integrated.

The advanced SC200 system controller offers high-level communications capability for real time information. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

A comprehensive range of other controller features ensures maximum battery life and optimum system performance under a wide range of environmental conditions.

The 19" rack mount system is ideal for rapid deployment into customer facilities or enclosures.

Typical applications include standby power for customer premises equipment, outdoor power plants, data networks and IP routers.

ES ENERGY SAVER VERIFIED SOLUTION

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Technical Specification

Input

AC Supply†	Nominal:	120V, 208-240V
	Operating Range:	90V – 275V*
	** Output power derates below 175V AC.*	
Power Factor†	>0.99 (50 – 100% Output Current)	
Efficiency†	APR48-3G : 92% (50 – 100% Output Current)	
	APR48-ES : >96% peak,	
	>95% (20% to 100% load, 230Vac)	
Total Harmonic Distortion	<5% THD from 50% to 100% at load.	

Output

DC Output Voltage Range	43 – 57.5V	
DC Output Power (maximum)†	APR48-3G : 120V AC:	3.3kW @ 48V
	208-240V AC:	5.4kW @ 48V
	APR48-ES : 120V AC:	3.45kW @ 48V
	208-240V AC:	6kW @ 48V

Environmental

Temperature Range	Rated:	-10°C – +50°C [14°F – +122°F]
	Extended:	-40°C – +65°C [-40°F – 149°F]*
	** Output current is derated above 50°C [122°F]*	

Mechanical

Dimensions H,W,D	3U [5.25", 133mm], 19" [483mm] mounting, 14" [356mm]*
	** Additional clear space is required for exhaust air. Rear access is required for cable terminations.*

System

System Controller	SC200 as standard. SC100 optional.
DC Distribution Module	10-way circuit breakers (2 x Battery, 8 x Load). Load circuit breakers: Heinemann AMIR Series 5A,10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A. Battery circuit breakers: Heinemann AMIR 100A or AMIP 120A.
Communication Features	USB direct* 10BaseT Ethernet*, TCP/IP*, SNMP*, Modbus-TCP*, Modbus-RTU* and on board web server* RS232 to external PSTN or GSM modem (modem not included) *SC200 only
Low Voltage Disconnect (LVD)	Battery disconnect: 200A internal.
Rectifier Blank Panels	For unused rectifier positions.
Options	Relay Rack Batteries.

† *Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.*

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
Power Xpert	Remote control and monitoring software

Certifications

All products comply with International Standards including UL (US and Canada) and FCC (Class B) Verification.

In the interests of continual product improvement all specifications are subject to change without notice.

RoHS COMPLIANT

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APSX-400 E

3G Access Power Solutions - APS6-400 Series

Features

- High power density (12kW @ 48V/6U, 19")
- Suitable for both 19" relay rack or enclosed cabinet
- High efficiency and unity power factor
- Easy fit plug-in hydraulic/magnetic circuit breakers.
- 20-way load and 6-way battery distributions
- Single or dual low voltage disconnect (LVD) options
- SC200 or SC100 intelligent system controller
- Onboard energy management software optimizes operating efficiency for lower OPEX
- Pre-configured software for quick & simple deployment
- Remote access (TCP/IP, web browser, SNMP)
- Easy plug-and-go rectifier set-up
- Fast on-line rectifier expansion (hot-plug)

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The **Eaton® 3G Access Power Solutions** are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power supplies with or without batteries. Typical applications include standby DC power for customer premises equipment, outdoor power plants, data networks and IP routers.

A technician friendly user-interface includes a full color menu screen and is preconfigured for fast install and easy commissioning.

The 19" rack mount system is ideal for rapid deployment into customer facilities or enclosures.

All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

The APS6-400 series has up to 12kW of power output, it features state-of-the-art 48 volt 3G Access Power Rectifiers, an integral DC distribution panel, easy to fit plug-in hydraulic magnetic circuit breakers, and optional low voltage disconnect (LVD) modules for battery and non priority loads.

The advanced system controller offers high-level communications capability for real time information. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

Other features include temperature compensated voltage output, automated equalize charging, and integrated battery testing, for maximum battery life under a wide range of environmental conditions.

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Technical Specification

Input

AC Supply†	Nominal:	120V, 208-240V
	Operating Range:	90V – 275V*
	** Output power derates below 175V AC.*	
Power Factor†	>0.99 (50 – 100% Output Current)	
Efficiency†	By system rectifier type: APR48-ES: >95% (20 - 100% output current) APR48-3G: 92% (50 - 100% output current)	
Total Harmonic Distortion	<5% THD from 50% to 100% at load.	

Output

DC Output Voltage Range	43 – 57.5V		
DC Output Power (maximum)	Rectifier type:	**APR48-3G**	**APR48-ES**
	120V AC:	6.6kW @ 48V	8.0kW @ 48V
	208-240V AC:	10.8kW @ 48V	12kW @ 48V

Environmental

Temperature Range	Rated: -10°C to +45°C [14°F to +122°F]

Mechanical

Dimensions H,W,D	6U [10.5", 267mm], 19" [483mm] mounting, 15.3" [390mm]* ** Additional clear space is required for exhaust air. Rear access is required for cable terminations.*

System

System Controller	SC200 as standard. SC100 optional.
DC Distribution Module	26-way circuit breakers (6 x Battery, 20 x Load). Load circuit breakers: Heinemann AMIR Series 5A,10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A, 120A (2-pole). Battery circuit breakers: 6 x Heinemann AMIR 80A, 100A or 3 x Heinemann AMIP 120A, 150A, 200A.
Communication Features of SC200	USB direct. 10BaseT Ethernet, TCP/IP, SNMP, On board web server. RS232 to external PSTN or GSM modem (modem not included).
Low Voltage Disconnect (LVD) (Optional)	Battery disconnect: 400A internal. Non priority load: 200A internal.
Rectifier Blank Panels	For unused rectifier positions.
Options	Relay Rack Batteries.

† *Power factor, efficiency, AC voltage range and output power is dependant on rectifier module fitted. Refer to the rectifier data sheet for more information.*

Software

DCTools	Configuration software. Free download from: www.powerware.com/downloads
PowerManagerII	Remote control and monitoring software

Certifications

North America:	UL listed 1801, cUL, FCC

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APS6-400 C

DV2-3G Metro Power Solutions (UL Listed)

48Vdc systems up to 600A maximum load current.

24Vdc systems up to 500A maximum load current.

Eaton DV2-3G Metro Power Solutions are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power. Typical applications include standby DC power for customer premises equipment, outdoor shelters, VoIP, PABX, data networks and IP routers.

The DV2-3G Metro series has up to 40kW of output for load and battery recharge. It features state-of-the-art Access 3G, or Energy Saver rectifiers, an integral DC distribution panel with easy to fit plug-in hydraulic magnetic circuit breakers, and optional low voltage disconnects (LVD) for battery and non priority loads. Each cabinet has fitted integrated battery shelves for up to 4 strings of 48V, or 8 strings of 24V, high capacity VRLA batteries. Optional battery cabinets for extended back-up time are also available.

A technician friendly user-interface includes a full color menu screen and is pre-configured for fast installation and easy commissioning. System settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

The advanced SC200 system controller offers high-level communications capability for real time information, including an Ethernet port for connecting directly to the Internet. It also has built-in intelligence for optimizing system efficiency, and comprehensive alarm and system status notifications, which are all designed to minimize operational expenses.

Other features include temperature compensated voltage output, automated equalize charging, and integrated battery testing, for maximum battery life under a wide range of environmental conditions.

ENERGY SAVER VERIFIED SOLUTION

Features

- High power density.
- High efficiency and unity power factor.
- Fast on-line expansion of rectifiers (hot-swap).
- Integrated batteries.
- Low voltage disconnects for battery and non priority loads.
- Easy fit plug-in hydraulic/magnetic circuit breakers.
- Flexible AC input.
- Intelligent system management features.
- Pre-configured software for quick & simple deployment.
- Automatic battery condition testing.
- Remote access (TCP/IP, web browser, SNMP).
- Energy management software optimizes operating efficiency for lower OPEX.
- All cabling top entry with optional rear cable duct extension for raised floor cable access.

EATON
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Technical Specification

Input

AC Supply Voltage*	North America: 3P 208Vac nominal 2P 240Vac nominal Global: 3P + N 230/400Vac nominal 1P + N 230Vac nominal
AC Input Frequency	50/60 Hz

System

Rectifier Module*		APR24-3G	APR48-3G	APR48-ES
	Nominal Output Voltage	24Vdc	48Vdc	48Vdc
	Output Voltage range	20–30Vdc	40–58Vdc	40–58Vdc
	Max Number of Rectifiers	10	20	20
	Maximum DC Power†	14.4kW	36kW	40kW
	Maximum Load Current	500A	600A	600A
	Efficiency	>91%	>92%	>96%

† Maximum DC power includes load and battery recharge.

Supervisory Module	SC200
Communications	10 baseT Ethernet port, web server, SNMP agent
Batteries	Type: Front access VRLA 48V: Up to 600Ahr per cabinet using four strings of 150Ahr batteries. 24V: Up to 1200Ahr per cabinet using eight strings of 150Ahr batteries.
Extension Battery Cabinets	Up to six extension battery cabinets fitted with either four strings of 48V or eight strings of 24V in each cabinet

DC Distribution

Load circuit Breakers	20-way total
Single Width Circuit Breakers	Heinemann AMIR Series 5A, 10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A
Dual Width Circuit Breakers	Heinemann AMIP 120A, 150A, 200A
Triple Width Circuit Breakers	Heinemann AMIP 250A
Battery Circuit Breakers	Heinemann AM1P, 200A integrated into battery shelf
Low Volt Disconnect Options	1 x battery disconnect, 1 x 400A non-priority load (10 positions for non priority, 10 positions for priority).

Mechanical

Dimensions H,W,D	2000mm [78.7"], 600mm [23.6"], 600mm [23.6"]
With rear cable duct extension H,W,D	2000mm [78.7"], 600mm [23.6"], 750mm [29.6"]
Weight	DV2-A20B-xxxx: 900kg [1980lb] typical maximum with 20 rectifier modules and 4 x 48V/150Ah battery strings.

Environmental

Operating Temperature Range	-25°C [-13°F] to 40°C [104°F]*
Humidity	<95% non-condensing
Altitude	<2000m (6500'). Thermally de-rates above this altitude, to a maximum altitude of 4000m

Certifications

All products comply with International Standards. Contact your local Eaton Power Quality representative for details on the specific product versions available with these safety and EMC approvals:

North America:	UL Listed 1801, cUL, FCC

*Refer to rectifier specifications for more information.
System capacity will vary depending on number of rectifiers and batteries selected.

In the interests of continual product improvement all specifications are subject to change without notice.

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© 2011 Eaton Corporation. All Rights Reserved. DV2-3G UL C

DV2-3G Metro Power Solutions Extension Battery Cabinet (UL Listed)

48Vdc : 4 strings

24Vdc : 8 strings

Eaton 3G Metro Power Solutions are ideal for low to medium power telecommunications applications requiring compact, efficient and flexible DC power. Typical applications include standby DC power for customer premises equipment, outdoor shelters, VoIP, PABX, data networks and IP routers.

The Extension Battery cabinet allows customers to easily configure and install additional battery back-up time for critical telecom and IT equipment. Up to six Extension Battery Cabinets can be installed in addition to the DV2-3G Metro cabinet. This gives a total battery capacity of up to 4200Ahr in 48Vdc solutions, or 8400Ahr in 24Vdc solutions.

The Extension Battery Cabinet can be fitted with an optional DC Distribution, extending the number of output circuits available from the power cabinet. These distributions utilise easy fit, plug-in hydraulic-magnetic breakers

When connected back to a DV2-3G Metro power cabinet, features include automatic temperature compensation, Battery MCB alarm monitoring, automatic equalizing and fast charging, and automatic battery testing.

All cable entry is top access. An optional rear cable duct extension is available to allow cables to be run to the top of the cabinet in raised floor situations.

Features

- 24" x 24" cabinet
- 4 Battery Shelves
- Optional DC distribution with easy fit plug-in hydraulic/magnetic circuit breakers.
- UL Listed

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Technical Specification

System Interconnections	
Communications	Screw terminals
Power	Direct onto busbars

DC Distribution (Optional)*	
Load Circuit Breakers	20-way total
Single Width Circuit Breakers	Heinemann AMIR Series 5A, 10A, 20A, 30A, 40A, 50A, 70A, 80A, 100A.
Dual Width Circuit Breakers	Heinemann AMIP 120A, 150A, 200A,
Triple Width Circuit Breakers	Heinemann AMIP 250A,
*Power is feed to the optional DC distribution from a load circuit in the Power Cabinet. See power system documentation for more details.	

Batteries*	
Type	Front access VRLA
48V Batteries	Up to 600Ahr per cabinet using four strings of 150Ahr batteries.
24V Batteries:	Up to 1200Ahr per cabinet using eight strings of 150Ahr batteries.
*Maximum of 6 battery cabinets added to the power cabinet per system	

Mechanical	
Dimensions H, W, D	2000mm [78.7"], 600mm [23.6"], 600mm [23.6"]
With rear cable duct extension H,W,D	2000mm [78.7"], 600mm [23.6"], 750mm [29.6"]
Weight	DV2-EBC4-xxxx: 850kg [1870lb]. Typical maximum with 4 x 48V/150Ah battery strings.
Operating Temperature Range	-25°C [-13°F] to 40°C [104°F]
Humidity	<95% non-condensing
Altitude	<2000m (6500'). Thermally de-rates above this altitude, to a maximum altitude of 4000m

Certifications (Pending)

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America:	UL Listed 1801, cUL, FCC

In the interests of continual product improvement all specifications are subject to change without notice.

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DV2-3G EBCUL A

DV2 - 3G Core Power Solutions North American Models

48V integrated systems up to 750kW

The **Eaton® Data-Voice-Video Core Power Solutions** range of DC power systems are designed for telecommunications network applications requiring high powered, efficient and flexible DC power supplies.

These DC power systems use Eaton CR48-3G rectifier modules and include an integral AC and DC distribution with flexible combinations of fuses and MCBs, and an SC200 system controller. Low voltage disconnect (LVD) options are also available. DC distribution cabinets can be connected in parallel where additional distribution space is required. Maximum rectifier capacity is 92.8kW, with additional cabinet(s) required for greater capacity. Systems up to 15,000A can be configured using external busbars.

Intelligent system management features include battery temperature compensation, fast charge, battery current limit, automatic equalize charging and automatic battery condition monitoring.

Typical applications are providing 48V standby power for centralized architecture such as local and central office switches and other large switch installations, wireless switching centers, long-distance transmission systems and data centers.

Eaton DV2 Core Power Solutions are pre-configured for fast installation and set-up. All system settings are fully adjustable in software and stored in transferable configuration files for repeatable one-step system set-up.

Typical Applications

- Wireless MSC sites (CDMA/GSM/3G UMTS)
- Local and central office switching
- Point of presence (POP) sites
- Data centers

Features

- Intelligent system management features
- Pre-configured software
- High power density
- Fast on-line expansion of rectifiers (hot-swap)
- High efficiency and unity power factor
- Range of DC distribution configurations
- Battery condition monitoring
- Wide AC input voltage range
- Seismic rated cabinet
- Remote monitoring and control
- Full length security door (optional)

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Technical Specification

Input	
Nominal AC Supply	3P+PE, Δ 208Vac 3P+N+PE, Y 230/400Vac, 277/480Vac 50/60Hz
Power Factor	>0.99* (20 – 100% Maximum System Current)
Efficiency	up to 92%*

Output	
DC Output Voltage Range	40 – 58V
Typical DC Output Power	46kW - 750kW †

Environmental	
Operating Temperature Range	-25°C to +40°C

Mechanical	
Dimensions H,W,D	2200mm [86"], 600mm [23.6"], 600mm [23.6"]
Weight	200kg [443lb] Typical configuration with 16 CR48-3G rectifier modules.

System	
System Controller	SC200

* Refer to rectifier data sheet for full details
† Up to 92.8kW in a single cabinet

Options	
AC Distribution	Rectifier MCBs
DC Distribution	DCM2000 – bullet breakers up to 250A per circuit. DCB1000 – high current circuit breakers up to 600A per circuit. DCF0208 – 2U fuse panel, 2xTPL fuses up to 800A each. DCF0408 – 4U fuse panel, 4xTPL fuses up to 800A each.
Low Voltage Disconnect (LVD)	Single or dual LVD can be configured as battery or load disconnect including non-priority load disconnect.
Rectifier Blank Panels	For unused rectifier positions
SiteSure	Input/output modules to monitor and control external equipment

Software	
Power Xpert	Remote control and monitoring software
DCTools	Configuration Software. Free download from www.powerware.com/downloads

Certifications	
All products comply with International Standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:	
Europe	CE
Australia / New Zealand	C-tick, Seismic rating to NZS4203

In the interests of continual product improvement all specifications are subject to change without notice.

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DV2CoreNA C

MPS12-30

Secure Micro Power Solution for In-Home Optical Network Terminals (ONT)

Eaton's MPS12-30 Micro Power Solution provides secure DC power for 'next generation' customer premise equipment (CPE) including fibre based communication and IP telephony applications. An integrated battery provides secure power backup to critical services such as phone, medical alert, home automation and security during a commercial (mains) AC power outage.

Typical backup time on battery power is approximately 4 to 8 hours depending on factors such as usage, battery age, state of charge, and environmental conditions. The MPS12-30 indoor solution greatly improves battery service life compared to comparable outdoor designs.

The MPS12-30 is the ideal secure power protection unit where continuation of critical services is

Features

- Universal input range of 80 - 260VAC
- 12V DC (30W max.) output
- Integrated, hot-swappable battery backup allows replacement by the owner, without power interruption
- Microprocessor controlled for maximizing reliability
- Audible power failure alarm with mute
- Digital outputs for remote monitoring
- Wall mountable design for flexibility
- Multiple LED design for AC power and battery status indications

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Technical Specification

Brief Technical Specifications

AC Supply	Input range: 80-260Vac
	Input frequency Range: 45-65Hz
	Inlet: IEC inlet
DC Output	Output power (max.): 30W
Nominal voltage:	12VDC
Output Voltage Range:	10.5 – 13.8VDC
Tolerance:	10.5V (-0.2V,+0.25V)
	13.8V (-0.35V, +0.15V)
Output Protection:	80%
	10Amps fuse soldered on PCB
Battery	Typical type/rating: 12V/7Ah (see figure 1)
	Discharge prevention: 10.5V ± 0.5V
	Rated charging voltage: 13.7V ± 0.25V
	Recharge time (internal batter): 4 hours to 90% load after complete discharge.
	Charge current: 2.5A maximum
	Hot swappable
LED Indicator	AC mode: green LED continuous
	Backup mode: yellow LED continuous
	Battery low: yellow LED flashing
	Battery replace: red LED flashing
	Battery missing: red LED continuous
	Fault: red LED continuous
	Battery self-test: green LED flashing
Audible Alarm	Battery mode: every 5 seconds
	Battery low: every 1 second
	Battery replace: every 2 seconds
	Battery missing: continuous
	Fault: continuous
Physical Specification	Weight of unit: 3.5kgs
	Dimensions H, W, D: 358mm, 120mm, 85.6mm
	Operating temperature: 0°C to 40°C
	Operating humidity: 0% to 90%
	Operating elevation: 0 to 3000m

Certifications

All products comply with international standards.
Europe: CE

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.

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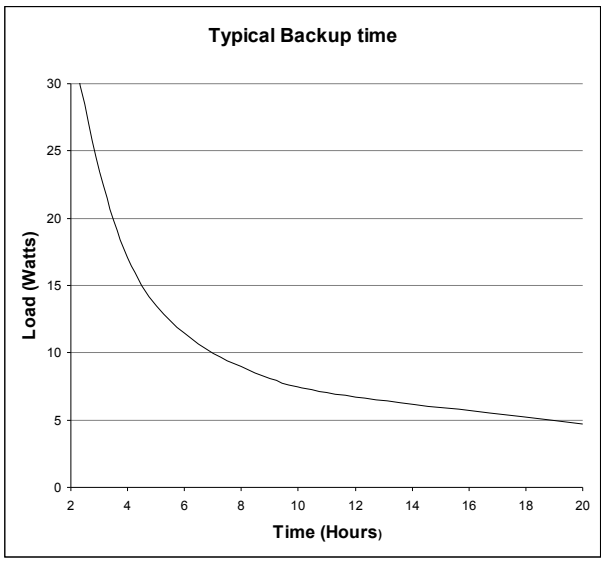
Figure 1: 12V/7Ah Battery Capacity



*Battery times are approximate and vary depending on factors such as:
- battery type
- load configuration
- battery charge
- battery age and temperature.

Country/Region Product Variance

Standard Product
MPS12-30 - Micro Power Solution, 12V, 30Watt, Includes Battery. AC cordset not included.

United Kingdom
MPS12-30-UK - Micro Power Solution, 12V, 30Watt, Includes Battery and UK 3pin cordset.

European Union
MPS12-30-EU - Micro Power Solution, 12V, 30Watt, Includes Battery and Schucko cordset.

Australia and New Zealand
MPS12-30-ANZ - Micro Power Solution, 12V, 30Watt, Includes Battery and Australia/New Zealand cordset.

North America
MPS12-30-NA - Micro Power Solution, 12V, 30Watt, Includes Battery and North America cordset.

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MPS B

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Matrix™ Modular Inverter Solution

The **Eaton® Matrix™ Modular Inverter Solution** is an integrated inverter power system designed for applications where a very high reliability AC supply is required.

The Matrix modular design ensures maximum flexibility to configure solutions to customers' requirements. Modules include inverters, Static Transfer Switch, controller, interface module and Maintenance Bypass Module. With its versatile "building block" design and n+x redundant configuration, the Matrix ensures reliable telecommunication and industrial AC power.

The Matrix Static Transfer Switch provides automatic and instantaneous load transfer between mains power and inverter power and back again, to ensure uninterrupted AC supply to sensitive electronic equipment.

The Matrix solution uses digital microprocessor control. The monitoring controller gives real-time system status through comprehensive LCD /LED displays, and allows program settings through the display panel.

With the Matrix communication interface module installed, you can control and monitor the system remotely.

Features

- Ultimate high power density reducing space demand
- Hot-pluggable connection allows module addition or removal without interruption to AC supply
- Versatile modular design allows a variety of configurations for different power needs
- Capacity up to 18kVA
- n+x redundancy
- Single phase 120Vac or 230Vac output options
- High efficiency, >89%
- Comprehensive LCD/LED display provides system status, and user-friendly panel eases program settings
- Optional Maintenance Bypass Switch with integrated AC distribution
- Optional USB/RS232/RS485 communication for local and remote management

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Technical Specification

DC Input	
Nominal Voltage	48Vdc
Operating Range	40.5Vdc ~ 58Vdc
Surge Protection	Telcordia GR-1089 CORD, ANSI C62.41-IEEE, STD 587-1980
Input Protection	Reverse polarity protection

AC Output	
Output Waveform	Pure sine wave
Output power	18kVA (max)
Power factor	0.8
Nominal Output	110/115/120Vac 208/220/230/240Vac
Frequency	50/60Hz ±0.5%
Crest factor	3:1
THD	<3%, linear load <5%, non-linear load
Efficiency	Min 88% at rated load
Overload	1.5*Inom >20s 1.25*Inom temperature controlled

Modules	
Inverter	INV-4810E: 1000VA/800W inverter module INV-4810: 1000VA/800W inverter module INV-4815E: 1500VA/1200W inverter module INV-4815: 1500VA/1200W inverter module
Static Transfer Switch	INV-STS-050: 50A static transfer switch INV-STS-100: 100A static transfer switch
Controller	INV-MC-1000: Controller module INV-IFC-1000: RS232/USB/RS485 interface module
Shelf	INV-SS-2-1U: Chassis for two inverters (1U) INV-STSSS-1U: Chassis for controller/STS-050 (1U) INV-STSSS-2U: Chassis for controller/STS-100 (2U) INV-MBSDU-50: 50A maintenance bypass, power distribution module (2U) INV-MBSDU-100: 100A maintenance bypass module (2U)

Mechanical	
Inverter Shelf	INV-SS-2-1U: (HxWxD) 1U x 19" x 330mm (1.75"x19"x13") Weight 2.7kg (6lb)
50A STS Shelf	INV-STSSS-1U: (HxWxD) 1U x 19" x 330mm (1.75"x19"x 13") Weight 2.7kg (6 lb)
50A MBS/DU	INV-MBSDU-50: (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 7.0kg (15.4lb)
100A STS Shelf	INV-STSSS-2U: (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 3kg (6.6 lb)
100A MBS	INV-MBS-100: ' (HxWxD) 2U x 19" x 330mm (3.5"x19"x13") Weight 7.0kg (15.4lb)

Maximum Number of Inverter Modules for Parallel Operation (Max Power)

Model	Without STS	With STS-050	With STS-100
INV-4810	12 (12kVA)	6 (6kVA)	12 (12kVA)
INV-4810E	12 (12kVA)	12 (12kVA)	12 (12kVA)
INV-4815	12 (18kVA)	4 (6kVA)	8 (12kVA)
INV-4815E	12 (18kVA)	8 (12kVA)	12 (18kVA)

Certifications

All products comply with international standards including CE and UL.

In the interests of continual product improvement all specifications are subject to change without notice.

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Matrix Inverter C

Matrix™ 2000 Standalone Inverter

Features

- Designed for telecom applications
- Pure sine wave output
- Unity power factor (full 2000 watt output power)
- Significant overload capability, 120% continuously, 200% for 5 seconds
- High efficiency, >91%
- High power density
- Built in Static Transfer Switch (STS)
- DSP design for improved reliability and performance
- Single phase 120Vac or 230Vac output options
- Comprehensive LCD/LED with keypad
- USB interface for connecting to PC
- Wide selection of configurable parameters.
- International certifications

The **Eaton® Matrix™ 2000 Standalone Inverter** is designed for use in telecommunications applications where a very reliable AC supply is required. The high efficiency and compact size makes the Matrix 2000 Inverter an outstanding solution for powering all types of critical AC equipment.

The Matrix 2000 Standalone Inverter provides 2000W of reliable AC power in a 1U x 19" rack mount package that includes a built-in Static Transfer Switch (STS). The STS automatically and instantaneously switches the AC output, from the DC inverter to an alternative source such as AC mains (and back again), providing extra security of the AC supply to the load equipment.

The Matrix 2000 solution uses digital microprocessor control to provide maximum performance under all operating conditions. The built-in controller gives real-time system status through comprehensive LCD/LED displays, and allows program setting through a keypad panel.

The Matrix 2000 Standalone Inverter includes a built in USB interface for monitoring and control.

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Technical Specification

DC Input	
Operating Range	48V: 40Vdc ~ 60Vdc

AC Input (to Transfer Switch)	
Voltage Range: (50/60Hz)	INV-4820SA: 89Vac to 138Vac INV-4820ESA: 176Vac to 276Vac
Transfer Time	<10ms

AC Output	
Power Output	2000VA / 2000W
Wave Form	Pure sine wave
Power Factor	1.0
Nominal Output Voltage (selectable)	INV-4820SA: 110/115/120Vac INV-4820ESA: 208/220/230/240Vac
Output Frequency	50,60Hz
Efficiency	>91% at rated load
Over Load Protection	2*Inom, 5sec max 1.5*Inom, 10sec max 1.25*Inom, temperature controlled

Environmental Requirements	
Operating Temperature Range	-20°C to 60°C (-4°F to 140°F) -20°C to 50 °C (-4°F to 122°F), full performance
Cooling	Fan Cooled

Certifications

All products comply with international standards.

Safety	EN60950-1 / UL60950-1
Europe	CE

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MTX2000 B

DCTools™ Configuration Software

Eaton® DCTools is the new configuration software for field technicians installing and maintaining Eaton DC power systems. It is supplied at no charge by download from the Internet and simplifies the setup and operation of all Eaton DC power systems.

Frontline staff will find DCTools is a major benefit during the installation, troubleshooting and support of any Eaton DC power system, CellWatch battery monitoring systems and SiteSure ancillary monitoring and control systems.

For added flexibility DCTools can connect to an Eaton DC power system in three ways; directly through an RS232 serial connection; through a dialup or cellular modem, or through an Ethernet LAN/WAN.

DCTools is the ideal setup and diagnostic tool for field technicians. It provides a very easy way for them to configure an Eaton DC product, and view status and alarm conditions.

Among the advantages of using DCTools are reduced installation times, lower fault response times, less need to visit sites and better access to operating data for fault analysis and operating conditions such as load growth.

These make the processes of power system installation and operation more efficient with the potential for real operating cost savings.

DCTools is available for download at www.powerware.com/downloads

Features

- DC power system configuration software
- Windows® compatible
- Easy to use graphical display
- Operates with all Eaton DC power systems, CellWatch™ and SiteSure™
- Local (RS232 serial) or remote (dialup modem or Ethernet) connection
- Downloadable from the Internet at no charge

EATON

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Technical Specification

Computer Minimum Requirements	
Operating System	Windows 98, Windows NT 4.0 or later
RAM	16Mb Ram Windows 98, 24Mb Windows NT
Connection	Standard serial port (Com port)
Internet connection	Required for download only

Interfaces	
Communications interfaces supported	RS232, Ethernet, or modem

Availability	
Free download	www.powerware.com/downloads

In the interests of continual product improvement all specifications are subject to change without notice.

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DCTool E

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EPR48-3G Rectifier Module

The **Eaton® EPR48-3G Enterprise Power Rectifiers** are designed specifically for enterprise applications such as PoE and VoIP converged data networks, customer premises equipment and also tele-communications roadside cabinet installations.

The EPR48-3G is a telecom network grade rectifier with 900W output. It is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

The EPR48-3G rectifier is microprocessor controlled and includes intelligent features such as automatic set up during installation, temperature dependant variable speed fans for lowest audible noise and automatic self protection over wide ranging environmental conditions.

The EPR48-3G also has power factor correction and is up to 91% efficient, with optimum performance available at typical load currents. Together these give the EPR48-3G some of the lowest running costs for any DC power system of its type available.

The EPR48-3G rectifier module will provide years of costeffective, and trouble free service for your 48V enterprise access equipment.

Typical Applications:

- PoE equipment
- VoIP/IP converged data networks
- PABX for any business network
- Telecom roadside cabinets

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- High efficiency and unity power factor
- Universal AC supply input
- Wide output voltage ranges
- Constant power output
- Compliance with international standards

Powering Business Worldwide

Technical Specification

Input	
AC Supply	Nominal: 220/240V, 50/60Hz Extended Operating Range: 90V – 275V
Power Factor	>0.98 (50 – 100% Output Current)
Efficiency	91% (50 – 100% Output Current)

Output	
DC Output Voltage Range	48V: 43 – 57.5V
DC Output (maximum)	900W (240V AC nominal) 550W (120V AC nominal)

Environmental	
Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F]
Cooling	Temperature controlled, variable speed, high reliability fans

Mechanical	
Dimensions H,W,D	3U: 133mm [5.25"], 42mm [1.65"], 266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications	
North America	UL, FCC Verification
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.

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EPR48-3G D

APR48-3G Rectifier Module

The **Eaton® APR48-3G Access Power Rectifiers** are designed specifically for network access applications such as cellular base stations, customer premises equipment and road-side cabinet installations.

The new generation 3G architecture is reliable, power dense and compact. The high power density allows as little as 1U of rack space to be occupied by power, therefore, maximizing space available for telco equipment.

The APR48-3G rectifier incorporates a combination of leading-edge high frequency switch mode technology for a flexible and efficient DC power source, with high reliability fan cooling which further contributes to its high overall reliability.

The APR48-3G is a high powered rectifier with 1800W output. It is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

These features make the APR48-3G perfectly suited to the wide variety of equipment and demanding environmental conditions found in network access applications.

The APR48-3G also has power factor correction and is up to 92% efficient, with optimum performance available at typical load currents. Together these give the APR48-3G some of the lowest running costs for any DC power system of its type available.

Operating with the Eaton SC100 or SC200 system con-troller, the APR48-3G rectifier modules will provide years of cost-effective, and trouble free service for your 48V network access equipment.

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- Industry leading power density
- High efficiency and unity power factor
- Wide AC supply conditions
- Wide output voltage ranges
- Constant power output
- Compliance with international standards

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Technical Specification

Input	
AC Supply	220/240V, 50/60Hz (nominal) 175-275V full output power up to 50°C [122°F]
Power Factor	>0.99 (50 – 100% Output Current)
Efficiency	92% (50 – 100% Output Current)

Output	
DC Output Voltage Range	48V: 43 – 57.5V
DC Output (maximum)	1800W @ 48V

Environmental	
Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F] and below -10°C [14°F]
Cooling	Temperature controlled, high reliability fans

Mechanical	
Dimensions H,W,D	3U: 133mm [5.25"], 42mm [1.65"], 266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications	
North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.

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APR48-3G F

APR48-ES Energy Saver Rectifier

The **Eaton® APR48-ES Energy Saver Rectifier** is designed for communications network operators who are striving to cut energy costs across the network, and/or to meet aggressive carbon footprint reduction targets.

Operating with well over 96% efficiency, it produces at least 50% less waste energy than most other modern rectifiers, and with potentially greater savings over older infrastructure.

The 2kW Energy Saver Rectifier is the ideal module size for powering access applications within a telecom network such as cellular base stations, ADSL equipment, and fibre nodes.

This rectifier features intelligent digital signal processing for enhanced control, producing peak efficiency in excess of 96% for typical operating loads, while also maintaining a very high minimum operating efficiency of 95 to 96%, over a very wide range of loads (from 30% to 100% of the 2kW capacity).

The high power density, short depth and flexible mounting options makes the Energy Saver Rectifier well suited to limited space applications such as ETSI and road side cabinets.

The Energy Saver Rectifier is fully compatible with existing Eaton 3G systems and it is one of the easiest rectifiers to use, with a simple plug-and-go insertion. It operates under a wide range of AC power conditions and in temperatures at up to 70°C (158°F).

Features

- 2000W output power
- Energy saving efficiency greater than 96%
- Wide efficiency curve
- Industry leading power density
- Fast on-line expansion of rectifiers (hot-swap)
- Simple 'plug and go' insert
- Unity power factor
- Digital signal processing for enhanced control
- Wide AC supply conditions
- Wide output voltage range
- Constant power output
- Compliance with international standards

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An Eaton Green Product

Technical Specification

Input	
AC Supply	120V/208-240V, 50/60Hz (nominal) 185-275V full output power up to 50°C [122°F] 90-185V reduced output power
Power Factor	>0.99 (50 – 100% output current)
Efficiency	>96% peak >95% (30 – 100% output power)

Output	
DC Output Voltage Range	43 – 57.5V
DC Output (maximum)	2000W @ 48V

Environmental	
Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output power derates above 50°C [122°F]
Cooling	Temperature controlled, variable speed, high reliability fan <50dBA ambient temperature 25°C

Mechanical	
Dimensions H,W,D	3U: 133mm [5.25"], 42mm [1.65"], 266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications	
North America	UL, FCC Verification, CSA, IC
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal.

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APR48-ES D

CR48-3G Rectifier Module

The **Eaton® CR48-3G Core Network Rectifiers** are designed specifically for core network applications such central office and data centres.

The new generation 3G architecture of the CR48-3G rectifier has improved space utilisation so rack space can be maximised for use with telco equipment and not power equipment.

The combination of industry leading power density and high frequency switch mode technology with high reliability fan cooling makes the CR48-3G a flexible, efficient, and very highly reliable DC power source.

The CR48-3G is a very high powered rectifier with 5800W output, it is designed for operation at up to 70°C (158°F) and under a wide range of AC power conditions.

The CR48-3G also has power factor correction and is up to 92% efficient, with optimum performance available at typical load currents. Together these give the CR48-3G some of the lowest running costs for any DC power system of its type available.

These features make the CR48-3G ideally suited to central office and data center applications that require the highest level of performance and reliability from the DC power system.

Operating with the Eaton SC200 system controller, the CR48-3G rectifier modules will provide years of cost-effective, and trouble free service for your core 48V network equipment.

Features

- Fast on-line expansion of rectifiers (hot-swap)
- Automatic set-up from system controller
- Intelligent microprocessor controlled
- Industry leading power density
- High efficiency and unity power factor
- 3Ø AC supply
- Wide AC supply conditions
- Wide output voltage ranges
- Constant power output
- Compliance with international standards

EATON
Powering Business Worldwide

Technical Specification

Input	
AC Supply	220/240V, 50/60Hz (nominal) 175-275V full output power up to 50°C [122°F]
Power Factor	>0.99 (50 – 100% Output Current)
Efficiency	92% (50 – 100% Output Current)

Output	
DC Output Voltage Range	48V: 43 – 57.5V
DC Output (maximum)	1800W @ 48V

Environmental	
Operating Temperature Range	-40°C – +70°C [-40°F – +158°F] Output current is derated above 50°C [122°F] and below -10°C [14°F]
Cooling	Temperature controlled, high reliability fans

Mechanical	
Dimensions H,W,D	3U: 133mm [5.25"], 42mm [1.65"], 266mm [10.45"] overall
Weight	1.7kg [3.7 lb]

Certifications	
North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia / New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice. Performance ratings are valid with all other variables at Nominal. Specifications guaranteed over rated operating range.

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CR48-3G D

SC200 System Controller

The **Eaton® SC200 System Controller** is an advanced control and monitoring solution for Eaton Enterprise, Access, Metro and Core Power Solutions.

It provides a full suite of advanced communications options, including built-in Ethernet interface, Web server, and SNMP agent.

Alarm notifications may be by SNMP traps, email, SMS, dial-out to PowerManagerII remote monitoring software, or relay contact closures.

An intelligent "Smart Alarms" feature provides highly configurable control and alarms to automated site management and improve performance – e.g. disconnect loads during peak AC grid loading, run outdoor cabinets in low noise mode at night, manage cooling, or customise site alarms to network requirements.

The SC200 provides full generator control and fuel metering capability for off-grid, hybrid generator, battery, solar and wind applications.

The SC200 is supplied preconfigured with a default configuration file, or factory customized for a particular application, ensuring fast and problem free installation. On-site changes are easily made from the front panel or with a Windows PC using DCTools configuration software.

The high-resolution color LCD display is easy to read and has an easy to use menu structure. All system values and alarms can be displayed, with easy keypad access to check or edit settings.

The SC200 works with separate system I/O boards for powerful and user-friendly interfacing. Easy, low cost I/O expansion is possible by adding additional I/O boards.

Typical Applications:

- 24V & 48V power systems
- Wireless cell sites & switches
- Transmission terminals
- Local & central office switching

Options:

- External GSM or PSTN modem
- Additional I/O boards for system expansion
- SiteSure-3G modules for site management

Features

- Ethernet interface built-in
- SNMP agent V1, V2c, V3
- Battery mid-point monitoring & discharge time remaining
- Generator control & fuel metering
- Alternative energy input metering
- SMS & email alarm messages (with GSM modem)
- Comprehensive system control functions
- Complies with international standards
- Setup via web, keypad or DCTools configuration software
- Language options
- Optional extra I/O boards or SiteSure-3G modules for expansion
- Smart alarms
- Modbus

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Technical Specification

Operation	
Supply Voltage Range	18 to 60Vdc
Operating Range	Standard: -10 to +50°C [14 to 122 °F] Extended: -25 to 70°C [-13 to 158 °F]

Input/Output Standard	
Analog inputs	Current sensor (3), Bus voltage (1), Temperature (2)
Digital inputs	4 Internal (pre-defined), 6 external (user-defined)
LVD contactor outputs	2 with one IOBGP module Up to 16 with additional IOBGP modules
Relay outputs	6 Voltage free, NO-C-NC, 0.1A @ 60VDC Screwless terminal block, 0.5mm^2 - 2.0mm^2 conductors

Communications Interfaces	
Physical	Ethernet, USB and RS232
Software	IP, http, https (secure web), S3P, modbus, SMTP (email)
Management software	DCTools configuration / local management software. Power Xpert remote management software. SNMP version V1, V2c or V3. Supports standard Network Management System software including HP OpenView Network Node Manager.

User Interface	
Display	Back-lit color dot matrix LCD 160 x 128 pixel Adjustable viewing angle
Keypad	6 keys
Language Options	English: Standard Spanish, German and Chinese available on request. Other language software upgrades by arrangement.
Indicators	Power on, Critical/Major alarm, Minor alarm

Mechanical	
Dimensions H,W,D	SC200: 133.5mm (3U), 44.5mm, 70mm IOBGP: 106mm, 175mm, 18mm
Mounting	SC200: rectifier slot or flush panel mount Orientation: vertical or horizontal IOBGP: panel mount

Datalogging	
Event Log	10,000 records
Data Log	10,000 records

Options	
Input/Output	With IOBSS module (SiteSure-3G): Analog inputs: 48 Digital inputs: 108 Digital outputs: 32
Modem communications	PSTN or GSM. Requires external modem.

Certifications	
China	MII
North America	UL, FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

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SC100 System Controller

The **Eaton® SC100 System Controller** is a control and monitoring solution for the Eaton 3G power solutions.

It provides a full suite of system control functions including Temperature Compensation, Equalize and Fast Charge.

A comprehensive range of alarms and alarm notification options are available, including SMS, relay contacts and modem dial out to Power Xpert.

The SC100 is supplied preconfigured with either a default configuration file, or with one factory customized for a particular application. This ensures fast and problem free installation.

If on-site changes are needed then these can be easily made from the front panel or with a Windows PC using DCTools configuration software.

The front panel incorporates a high-resolution back-lit LCD display with easy to read characters and easy to use menu system.

All system values and alarms can be displayed and the keypad provides easy access to check or edit settings.

The SC100 works with a separate system I/O board for powerful and user-friendly interfacing.

Typical Applications:

- 24V and 48V power systems
- Wireless cell sites and switches
- Transmission terminals

Options:

- External GSM or PSTN modem

Features

- Comprehensive system control functions
- Supports PSTN and GSM external modems
- User-friendly menus
- Pre-loaded customized configuration file
- Complies with international standards
- Setup via DCTools configuration software
- Language options
- Low cost

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Technical Specification

Operation	
Supply Voltage Range	19 to 60Vdc
Operating Range	-10 to +70 °C [14 to 158 °F]

Input/Output with IOBGP-00	
Analog inputs	Current sensor (3), Bus voltage (1), Temperature (2)
Digital inputs	4 Internal (pre-defined), 6 external (user-defined)
LVD contactor outputs	2
Relay outputs	6 Voltage free, NO-C-NC, 0.5A @ 100VDC Screw terminal block, 0.5mm^2 - 2.0mm^2 conductors

Communications Interfaces	
Physical	RS232
Software	S3P, MII
Management software	DCTools configuration / local management software. Power Xpert remote management software.

User Interface	
Display	Back-lit dot matrix LCD 128 x 128 pixel Adjustable viewing angle
Keypad	4 keys
Language Options	English: Standard Other languages by arrangement.
Indicators	Power on, Critical/major alarm, Minor alarm

Mechanical	
Dimensions H,W,D	SC100: 133.5mm (3U), 44.5mm, 60mm IOBGP: 106mm, 175mm, 18mm
Mounting	SC100: rectifier slot or flush panel mount Orientation: vertical or horizontal IOBGP: panel mount

Datalogging	
Event Log	100 records

Options	
Modem communications	PSTN or GSM. Requires external modem.

Certifications	
China	MII
North America	FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

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SC100/IOBGP D

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SiteSure™

Features

- Modular
- DIN Rail Mounted
- Plug-in Connectors
- Remote Control and Monitoring
- Real Time Data Collection
- Compliance with International Standards

SiteSure is a suite of add-on modules to provide control and monitoring of a wide range of external devices. It uses the communications capability of an Eaton DC power system to monitor and control security, air conditioning, engine alternators and other building services, or sense DC currents for load metering.

The SiteSure modules can be added as required to provide the number of inputs and outputs needed for a particular application.

SiteSure modules can be remotely controlled and configured using the Power Xpert remote control and monitoring software or with DCTools.

The SiteSure range of modules includes:

SiteSure General Purpose Modules (SSGP) allows the collection of status information at the telecommunications site via configurable digital and analog inputs.

SiteSure Digital Input Modules (SSDI) provides additional digital inputs.

SiteSure Digital Output Module (SSDO) provides relay outputs for local control or alarm indication.

Auxiliary Power Module (APM) provides additional power for larger installations or where sensors require DC power.

Current Input Module (IOMCS) provides configurable current sensor inputs.

EATON

Powering Business Worldwide

Technical Specification

Supply Voltage Range	18 – 70V
Rated Operating Range	-10°C to +80°C [+14°F to +176°F]

Input/Output

SSGP	Digital Inputs: 6 (2 configurable as frequency inputs) Analog Inputs: 6 (2 configurable as temperature sensors)
IOM-CS	Current Inputs: 6 Temperature Input: 1 Digital Input: 1
SSDI	Digital Inputs: 12
SSDO	Digital Outputs: 8
APM	2 Outputs: 1: 12V, 500mA auxiliary 12V supply for third party equipment 2: 9V, 400mA supply for RCP bus extender
Dimensions H,W,D	All modules except APM 80mm [3.15"], 27mm [1.06"], 65mm [2.60"] APM 80mm [3.15"], 54mm [2.13"], 65mm [2.60"]

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America	UL (USA, Canada), FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

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SiteSure F

SiteSure-3G™

The **Eaton® SiteSure-3G** adds on to the SC200 Controller to provide control and monitoring of a wide range of external devices. It uses the communications capability of an Eaton DC power system to monitor and control security, air conditioning, engine alternators and other building services, or sense DC currents for load metering.

Additional SiteSure-3G modules can be added as required to provide the number of inputs and outputs needed for a particular application.

SiteSure-3G modules can be remotely controlled and configured using the Power Xpert remote control and monitoring software or with DCTools local craft terminal.

SiteSure-3G is also compatible with Network Management Systems using SNMP.

Features

- Remote control and monitoring
- Expandable
- Modular
- Real time data collection
- Compliance with international standards

Powering Business Worldwide

Technical Specification

Operation

Supply Voltage Range	19 to 60V
Rated Operating Range	-10°C to +80°C [+14°F to +176°F]

Input/Output

Bus voltage input	Number: Range:	1 -60V to +60V
Current inputs	Number: Range:	3 -50mV to +50mV
Temperature inputs	Number: Range:	2 2.53V to 3.23V (-20°C to +70°C with TS02 temperature sensor)
Digital inputs	Number:	10
General purpose analog inputs	Number: Range:	4 0V to +10V
Digital Outputs (Relays)	Number: Type:	6 Voltage free, NO-C-NC 0.3A @ 60VDC / 1A @ 30VDC

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

North America	UL, FCC Verification, IC
Europe	CE
Australia / New Zealand	C-tick

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SiteSure-3G C

RM3-300 Series Rectifier Magazine

Features

- 48V or 24V
- 19-inch cabinet mounting
- Compact 1U height, 150A output
- Suitable for Enterprise and Access 3G power rectifiers including Energy Saver Rectifier
- Independent AC input to each rectifier
- Compliance with international standard

The Eaton RM3-300 rectifier magazine is a versatile and compact 1U high, 19-inch modular power shelf. It can accommodate both the Enterprise and Access series of Eaton 3G and Energy Saver (ES) rectifiers and can be configured for up to 3 rectifiers or, 2 rectifiers and a system controller.

The RM3-300 series has an output capacity of up to 150A (actual output is dependent on the rectifier model fitted). Both the top-entry AC cords and air exhaust airflow allow the RM3 to mount in limited depth of space applications.

The DC output is via a field wiring termination box to provide an easily accessed connection (take-off) point for flexible cables.

Independent AC supply to each rectifier position is via plug & cord sets where country and voltage specific sets are available upon request.

The RM3-300 series is suitable for both 600mm and 300mm deep cabinets and includes mounting brackets that can be moved along the chassis to provide a wide range of mounting position options.

Powering Business Worldwide

Technical Specifications

Brief Technical Specifications

AC Supply	1Ø or 2Ø via individual cord sets
DC Output	24V: up to 150A 48V: up to 125A (dependent on rectifiers fitted) Interconnecting busbars with flexible cable take-off (field wire-able).
Dimensions H,W,D	Standard: 1U*, 19", 298mm [11.7"] *Additional clear space is required for exhaust air and top AC cable entry at the rear.
Weight	3.9kg [8.6lb] including AC cable sets.
Rectifier Configurations	3 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES 2 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES plus system controller
Options	Rectifier cover for unused rectifier positions (RM3B-A01). AC cord sets - country/voltage specific. 23" mounting brackets.
Versions	RM3-300 series (3 rectifiers, no system controller) RM3-310 series (2 rectifiers, SC100 system controller) RM3-320 series (2 rectifiers, SC200 system controller)

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice.

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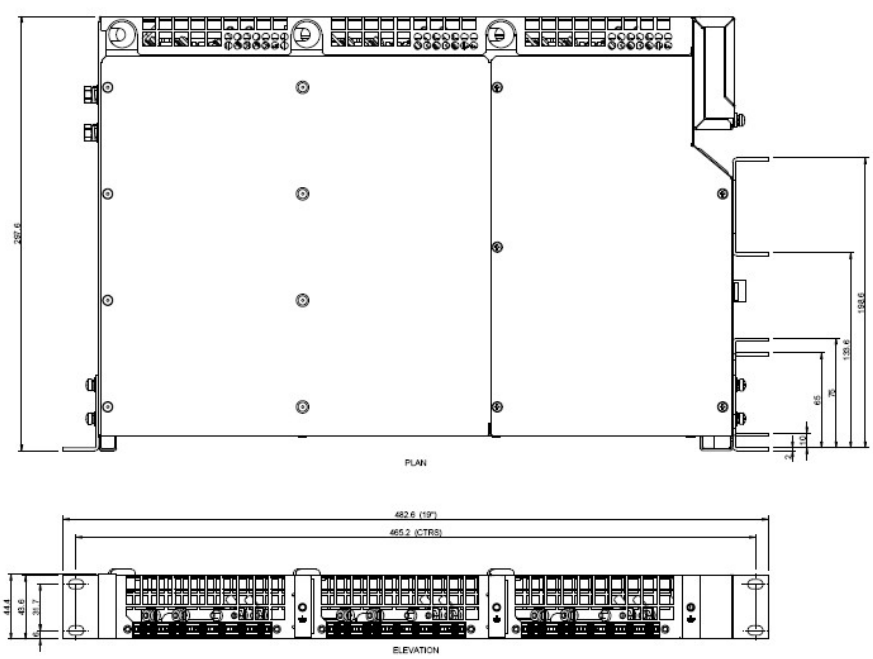

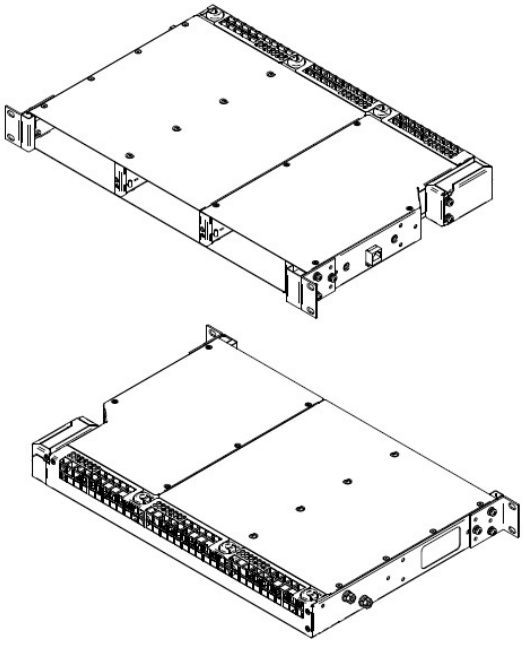

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RM3-300 C

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RM3-400 Series Rectifier Magazine

Features

- 48V or 24V
- 19-inch relay rack or cabinet mounting
- Compact 1U height, 150A output
- Suitable for Enterprise and Access 3G power rectifiers including the Energy Saver Rectifier
- Independent AC input to each rectifier
- Compliance with international standards

The Eaton RM3-400 rectifier magazine is a versatile and compact 1U high, 19-inch module designed to UL specifications. Its can accommodate both the Enterprise and Access series of Eaton 3G and Energy Saver (ES) rectifiers and can be configured for up to 3 rectifiers or, 2 rectifiers and a system controller.

It has an output capacity of up to 150A (actual output is dependent on the rectifier model) however, the front-to-back airflow allows two RM3 magazines to be stacked for higher capacity solutions.

The DC output is via a field wiring termination box to provide an easily accessed connection (take-off) point for flexible cables.

Independent AC supply to each rectifier position is via either plug & cord sets or IEC plugs where country and voltage specific sets are available upon request.

The RM3-400 series is suitable for both cabinet and relay rack mounting. The mounting brackets can be moved along the chassis to provide a wide range of mounting position options.

The RM3-400 series is an ideal solution to supply front end power to customer equipment or as a building block for integrated systems in custom applications.

Powering Business Worldwide

Technical Specifications

Brief Technical Specifications

AC Supply	1Ø or 2Ø via individual cord sets
DC Output	24V: up to 150A 48V: up to 125A (dependent on rectifiers fitted) Interconnecting busbars with flexible cable take-off (field wireable).
Dimensions H,W,D	Standard: 1U, 19", 335mm [13.2 "]* *Additional clear space is required for exhaust air.
Weight	3.9kg [8.6lb] including AC cable sets.
Rectifier Configurations	3 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES 2 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES plus system controller
Options	Rectifier cover for unused rectifier positions (RM3B-A01) AC cord sets - country/voltage specific 23" mounting brackets
Versions	RM3-400 series (3 rectifiers, no system controller) RM3-410 series (2 rectifiers, SC100 system controller) RM3-420 series (2 rectifiers, SC200 system controller)

Certifications

All products comply with international standards. Contact your local Eaton DC representative for details on the specific product versions available with these safety and EMC approvals:

Europe	CE
North America	UL (recognized)

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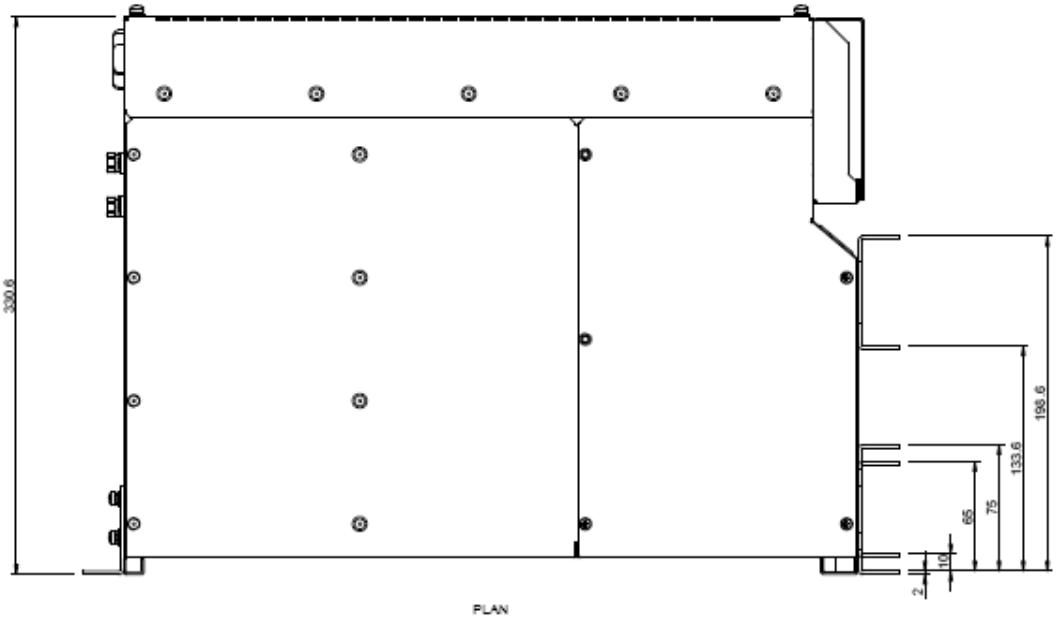

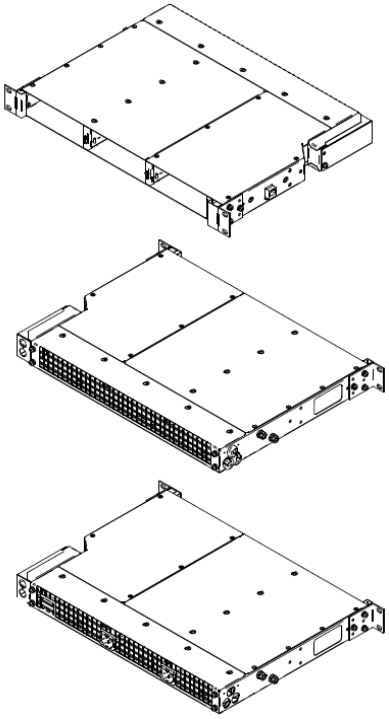

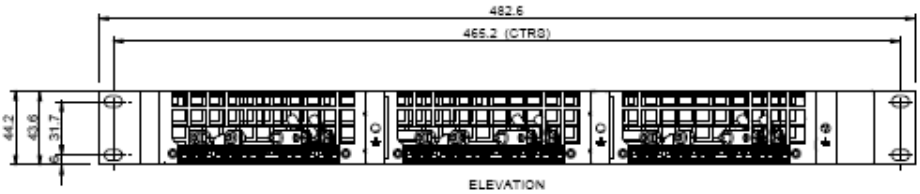

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RM3-400 C

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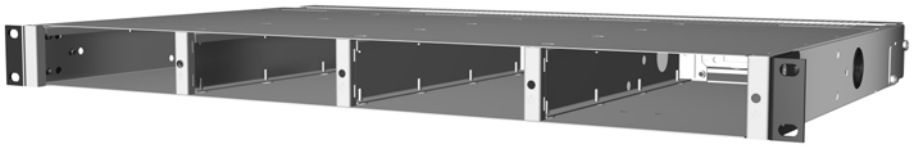
RM4-400 Series Rectifier Magazine



Features

- 48V or 24V
- 23" relay-rack or cabinet mounting
- Compact 1U height, 200A output
- Suitable for Enterprise and Access 3G and Energy Saver (ES) power rectifiers
- Fast on-line expansion of rectifiers (hot-swap)
- Single or two-phase AC input
- Compliance with international standards

The Eaton RM4-400 series rectifier magazine is a versatile and compact 1U high, 23-inch module that is designed to UL specifications. It can accommodate both the Enterprise and Access series of Eaton 3G and Energy Saver (ES) rectifiers and can be fitted with up to four rectifiers or three rectifiers and a system controller.

It has an output capacity of up to 200A (actual output is dependent on the rectifier model), however the front-to-back airflow allows two RM4 magazines to be stacked for higher capacity solutions.

The DC output is via a field wiring termination box to provide an easily accessed connection (take-off) point for flexible cables.

AC supply is via two flexible cords (one cord per two rectifier positions) and is suitable for both single-phase and two-phase AC supply applications.

The RM4-400 series is suitable for both enclosed cabinet and open frame relay-rack mounting. The mounting brackets can be moved along the chassis to provide a wide range of mounting position options.

The RM4-400 series is an ideal solution to supply front end 48V power to customer equipment or as a building block for integrated systems in custom applications.

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Technical Specification

AC Supply	1∅ or 2∅ via two flexible cords (2 rectifiers per cord)
DC Output	48V: Up to 166A (dependant upon rectifiers fitted) 24V: Up to 200A Internal interconnecting bus bars with flexible cable take-off (field wireable)
Dimensions (H,W,D)	1U, 23" mounting, 436mm [17.2inch]* *Additional clear space is required for exhaust air
Output	4.1kg [9lb]
Rectifier Configurations	4 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES or 3 x EPR48-3G / APR48-3G / APR24-3G / APR48-ES plus system controller (SC100 or SC200)

Options

Rectifier Blank Panels	RM3B-A01
System Controllers	SC200-00 (feature enhanced system controller) SC100-00 (basic system controller)

Certifications

All products comply with international standards.

North America	UL, FCC Verification, CSA, IC
Europe	CE
Australia /New Zealand	C-tick, Telepermit

In the interests of continual product improvement all specifications are subject to change without notice.

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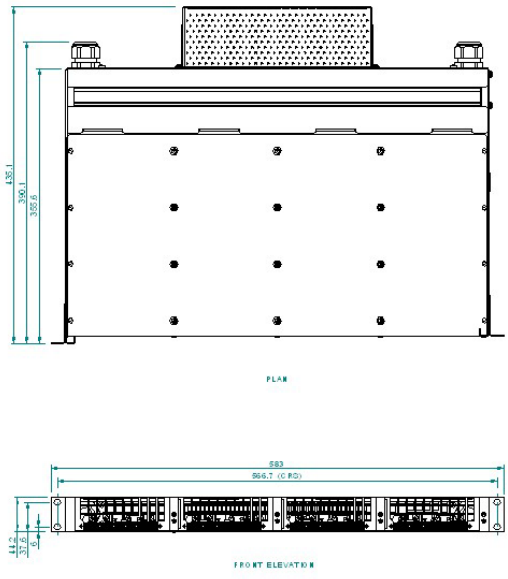

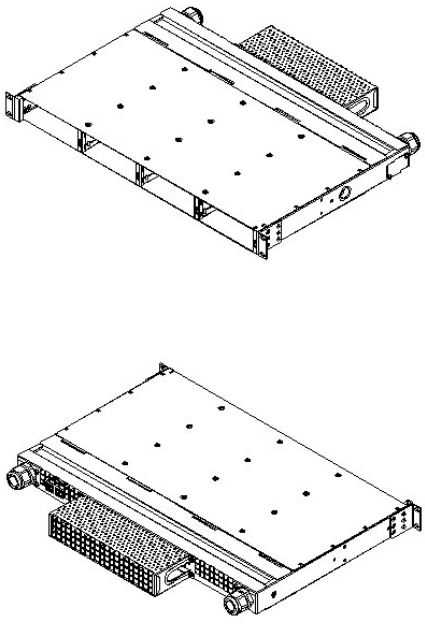

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RM4-400 B

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3G DC Distribution Module - DCD1M Series

Features

- 1U High
- 19" rack mounting
- Battery & load circuits
- Easy to fit push-in circuit breakers
- Optional low voltage disconnect
- Integrated current sensor
- Cabinet or relay rack mounting

The Eaton 3G DCD1M Series of DC Distribution Module is a 1U high, 19" rack mount 48V DC distribution module, an ideal solution for converged data networks and low power telecommunications applications requiring compact, efficient and flexible DC power supplies.

The DCD1M series is available with up to two battery circuits and 10 individual load circuits. It may be used with either the Eaton 3G series of secure DC power systems or as 'standalone' for use with 3rd party equipment.

The high interrupt rating of the battery circuit breakers make the DCD1M series suitable for use as a primary protection module with a wide range of batteries.

This module features front access, easy to fit, push-in circuit breakers for ease of installation and servicing in the field.

The DCD1M is available with an optional low voltage disconnect contactor to prevent over discharging of backup batteries, an onboard current sensor and MCB trip detection monitoring for use with the Eaton 3G series of secure DC power systems.

Typical applications include providing DC distribution for customer premises equipment, roadside cabinets, converged VoIP/data networks, IP routers and small PABX's.

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Technical Specification

DC Voltage Range	48V (nominal) 43V - 58V
DC Power (maximum)	4080W (85A @ 48V)
Efficiency	92% (50 – 100% Output Current) †

Output

DC Output Voltage Range	20V – 58V
DC Distribution Circuits	12-way circuit breakers (2 x Battery, 10 x Load) Circuit breaker type: magnetic/hydraulic, push fit type **Battery circuit breakers:** Heinemann AC1R Series Typical ranges available: 40A, 50A, 60A Interrupt rating: 5000A **Load circuit breakers:** Heinemann JC1S Series Typical ranges available: 5A, 10A, 20A, 30A(max)
DC Circuit Connections	**Load:** 10way terminal barrier strips (screw terminals, max 10AWG/4mm2 cable) **Battery:** Anderson Powerpole, PP45 (max 10AWG/4mm2 cable)
Polarity /Grounding	Positive ground or floating (in-field selectable)
Operating Temperature Range	-10°C to +50°C [14°F to +122°F]
Dimensions H,W,D	1U , 19" mounting*, 11" [280mm]** * Optional 23" mounting brackets available ** Additional access space is required see installation guide for details.
Weight	DCD1M-00 4.1kg [9.1lb] DCD1M-01 4.4kg [9.8lb]
System Controller	Compatible with SC200 & SC100 based systems (when LVD included, onboard current sensor and MCB trip detection features required)

Optional

Low Voltage Disconnect (LVD)	Battery disconnect: 100A internal contactor
Load Circuit Cable	CKLOAD-00 10sets, 1500mm long, 10AWG/4mm2
Battery Input Connection Cable	CKBATT-00 2000mm long, for connection to Powerware EBM module CKBATT-01 2000mm long, for connection to generic battery
23" rack mounting brackets	621-04998-29 23" mounting bracket (2 required)
Rectifier Blank Panels	For unused rectifier positions

Part Numbers

DCD1M-00	1U, 19" rack mount DCD distribution module.
DCD1M-01	1U, 19" rack mount DCD distribution module. c/w low voltage disconnect and onboard current sensor

Certifications

All products comply with international standards.

North America	UL (Canada, USA)
Europe	CE

In the interests of continual product improvement all specifications are subject to change without notice.

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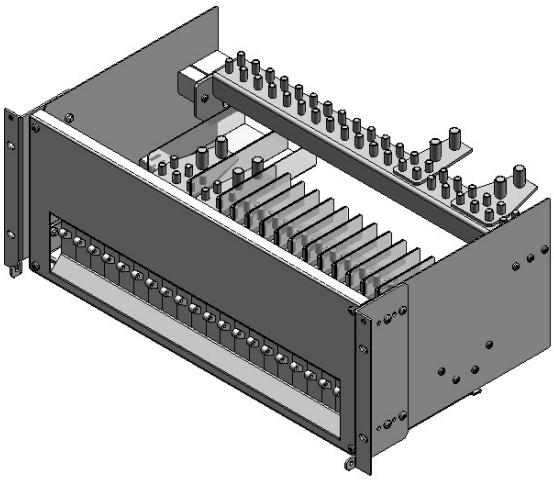
DCM2000 - DC Distribution Module



The DCM2000 DC distribution provides circuit protection for a wide selection of telecommunications loads up 250A per circuit and 800A per distribution. All circuit breakers are alarmed through aux contacts providing volts free alarm signals. The DCM2000 is designed to comply with recognized international standards and for complete operator safety. Full front access is provided to allow easy termination of load cables in either vertical or horizontal cable entry.

Features

- 4U Module
- Up to 20 bullet terminal breakers
- Selection of MCB ratings to 250A
- Tool access front cover
- Front access for cable termination
- Circuit breaker trip alarms
- Compliance with international standards

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Technical Specification

Brief Technical Specifications

Voltage Range	20 – 58Vdc
Maximum Current	800A @ 50°C [122°F], (CE) 600A @ 40°C [104°F], (UL)
CB Type	Heinemann AM1R or AMA1P
CB Current Ratings (Other ratings available on request)	Single Pole: 10A, 20A, 30A, 40A, 50A, 60A, 70A, 80A, 100[a] Multi Position: 150A (2P), 200A (2P) , 250A (3P)
Load Cable Termination	Two hole lug, vertical or horizontal cable entry
Alarms	MCB Aux contacts.
Operating Temperature Range	-10°C — +50°C [+14°F — +122°F] (CE) -10°C — +40°C [+14°F — +104°F] (UL)
Dimensions H,W,D	4U: 177mm [12.25"], 480mm [19" mounting], 300mm [12"]

Certifications	Europe:	CE
	North America:	UL60950 pending UL1801 pending

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DCM2000 B

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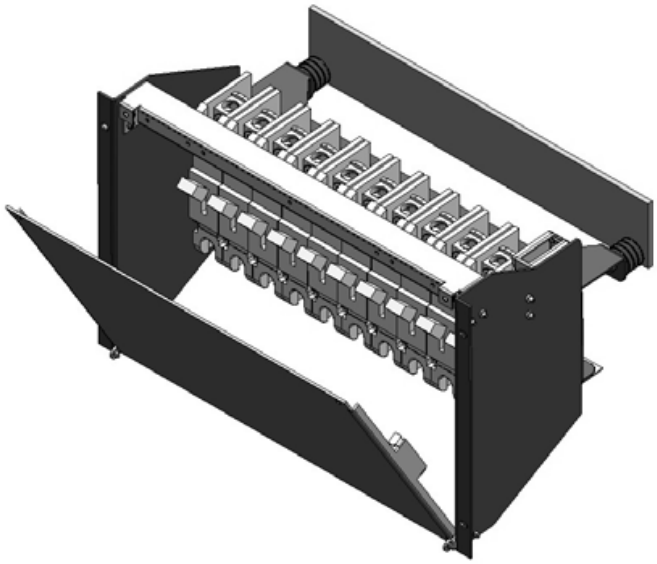
DCB1000
MCCB Distribution Module



The DCB1000 DC distribution provides circuit protection for a wide selection of telecommunications loads up to 1200A per distribution. All MCCBs are alarmed with automatic detection of load current to prevent false alarms from unused circuits. The DCB1000 is designed to comply with recognized international standards and for complete operator safety. Full front access is provided to allow easy termination of load cable.

Features

- 7U module
- Up to 10, 250A circuit breakers
- Selection of MCCB ratings to 400A
- Tool access front cover
- Front access for cable termination
- MCCB alarms with load detection
- Compliance with international standards

Powering Business Worldwide

Technical Specification

Brief Technical Specifications

Voltage Range	20 – 70Vdc
Maximum Current	1200A @ 50°C [122°F]
MCCB Type	Heinemann GJ1 or Airpax JLM
MCCB Current Ratings	Single Pole: 100A, 125A, 150A, 175A, 200A, 225A, 250A Multi Pole: 275A, 300A, 350A, 400A, 450A, 500A, 550A, 600A, 700A, 800A, 900A, 1000A, 1100A, 1200A.
Load Cable Termination	Load termination is direct onto MCCB. Specify requirements when ordering MCCB's.
Alarms	Electronic type with load detection
Operating Temperature Range	-10°C — +50°C [+14°F — +122°F]
Dimensions H,W,D	7U: 177mm [12.25"], 480mm [19" mounting], 300mm [12"]
Certifications	North America: UL60950 pending UL1801 pending

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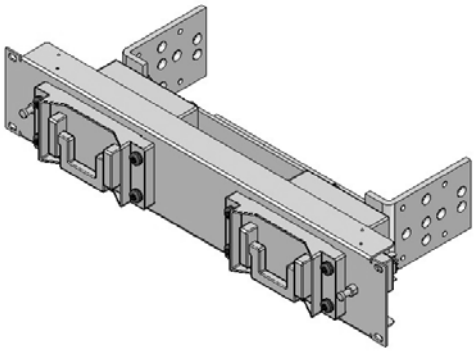
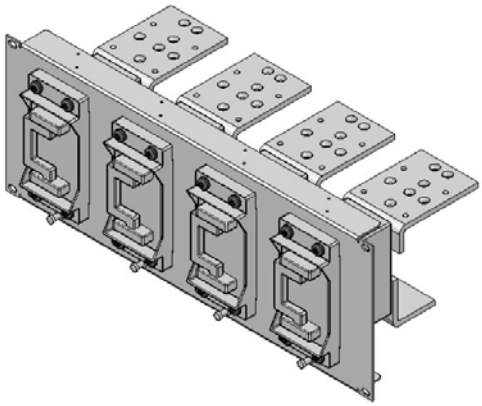
DCB1000 A

DCF0208 and DCF0408 Fuse Distributions Modules





The DCF0208 and DCF0408 DC fuse distributions provide circuit protection for a wide selection of telecommunications loads requiring up to 800A fuse protection. All Fuses are alarmed and provide volts free alarm contacts through shunt trip circuit breakers. The DCF0208 and DCF0408 are designed to comply with recognized international standards and for complete operator safety.

Features

- 19" rack mount
- 2U or 4U module
- 2 or 4 telpower fuse holders
- Selection of fuse ratings up to 800A
- Volts free fuse fail alarms
- Compliance with international standards

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Technical Specification

Brief Technical Specifications	
Voltage Range	20 – 70Vdc
Maximum Current	640A @ 40°C [102°F] per fuse
Fuse Type	Bussmann TPL
Fuse Current Ratings	250A, 300A, 350A, 400A, 450A, 500A, 600A, 700A, 800A
Load Cable Termination	Two hole lugs onto output busbar
Alarms	Voltage free contacts
Operating Temperature Range	-10°C — +40°C [+14°F — +104°F] (UL)
Dimensions H,W,D	2U: 88mm [3.5"], 480mm [19" mounting], 200mm [8"] 4U: 177mm [7.0"], 480mm [19" mounting], 200mm [8"]

Certifications	Europe:	CE
	North America:	UL60950 pending UL1801 pending

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DCF0208/0408 A

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